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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,510	09/17/2003	Knut Behnke	81630/LPK	4661

7590 07/13/2005

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EXAMINER

LEUNG, PHILIP H

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,510

Applicant(s)

BEHNKE ET AL.

Examiner

Philip H. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9-13-2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election without traverse of Group II, claims 11-32 in the reply filed on 6-22-2005 is acknowledged.
2. Claims 1-10 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6-22-2005.
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Microwave Cavity Resonator for Heating Printing Substance and/or Toner".
4. The drawings filed on 6-30-2004 are acceptable.
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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6. Claims 11-13 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Lyle et al (US 2003/0154620 A1).

Lyle shows an apparatus for heating a printing substance, in an electrophotographic printer, having at least one resonator 200 with at least one cavity 270 for microwaves emitted by a microwave transmitter, microwave source, or microwave generator 230 (see paragraph [0048]), which produces at least one standing microwave (see lines 13-17 of paragraph [0038]), and which has a gap through which printed matter is caused to move, wherein the resonator is configured for power distribution of the resonator-applied microwave which is preset and adjusted for each application requirement (as it states in paragraph [0034]):

“Electromagnetic source 230 transmits high frequency electromagnetic energy into resonant cavity 270 to establish E-fields in a resonant condition within the resonant cavity. Microwave source 230 is selected for the E-field required and is adjusted for loss, the loss being created by at least the cavity shape, material, and media 210 entering the resonant cavity 270. A microwave chamber is formed by the combination of resonant cavity 270 in combination with input waveguide 250 and output waveguide 240. Resonant modes in the chamber are superimposed to create the E-field through which the paper passes for heating. The length of the resonant cavity 270 and the shape of waveguide 280 through which the transmitted energy enters resonant cavity 270 are designed to excite specific modes that superimpose to produce an E-field that is flat within a range that will produce uniform heating. The heating is advantageously centered within resonant cavity 270, such that the trajectory of media 210, as it passes through resonant cavity 270, traverses a substantially flat and constant E-field to facilitate uniform drying of media 210”; and also, in paragraph [0035]:

“Another method used to insure uniform drying of media 210 is through the use of Frequency Modulation (FM). Uniform heating in resonant cavity 270 may be achieved by frequency modulating microwave source 230. The absorption peak of water has a non-zero bandwidth, meaning that high absorption may be obtained across a non-zero frequency range centered about a center frequency. By frequency modulating the center frequency of microwave source 230, a non-zero frequency band is established having a center frequency equal to the transmission frequency of microwave source 230 with a bandwidth directly proportional to the peak frequency deviation of the FM signal. Accordingly, high absorption is achieved for a few MHz on either side of the center frequency of microwave source 230. FM changes the locations of peaks and nulls in the resonant modes within resonant cavity 270 and thus a more uniform heating solution is produced”.

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See Figures 1-5 and paragraphs [0033] – [0044]. In regard to claims 12 and 13, the power distribution in any resonant cavity inherently is a function of position and/or the dimensions of the cavity as “no means for performing the function” in the claims.

Similarly, there is no structure in the claims for the intended functions as claimed in claims 18-20 and therefore the claimed limitations are inherent in Lyle.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 14-17 and 21-32 are rejected under 35 U.S.C. 103(a) as being obvious over Lyle et al (US 2003/0154620 A1), in view of Boling (US 3,999,026) (cited by the applicant) or Soulier (US 3,783,221).

As set forth above, Lyle shows every feature except for the exact structure of the resonant cavity. Boling shows that it is well known in the art of microwave heating

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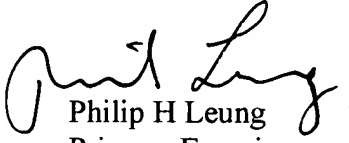
devices to position various walls 14, flanges 2 and/or shaped conductors 24, 26 for adjusting the power distribution according to the heating requirements of the specific material to be heated (see Figures 1-10 col. 2, lines 26-37 and col. 2, line 66 – col. 5, line 22). Soulier also shows a microwave heating device including a resonant cavity with various adjusting devices (movable absorber 6, various opening slots 9 and adjustable shaped wall 10) for modifying the power distribution in the cavity (see Figures 1-8 and col. 2, line 1 – col. 3, line 57). It would have been obvious to an ordinary skill in the art at the time of invention to modify Lyle to use various well known elements, such as flanges and partition walls to adjust the field distribution in the resonant cavity for more effectively heating a sheet material passing through the cavity according to the heating characteristics of the material to achieve better and uniform heating result, in view of the teaching of Yoshihara. The exact structure would have been a matter of engineering expediency depending on the exact material being heated and can be easily determined through routine experimentation by an ordinary artisan.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 472-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Philip H Leung
Primary Examiner
Art Unit 3742

P.Leung/pl
7-9-2005